DOCUMENT RESUME

ED 225 536 IR 010 541

AUTHOR Hancock, Burton W.; And Others
TITLE Integration of Media Components for Successful Teleconferencing.
PUB DATE 82
NOTE 6p.; For related documents, see IR 010 465 and IR 010 521-522. Published in: Parker, L. A., Ed. and Olgren, C., Ed. "Teleconferencing and Electronic Communication." Madison, University of Wisconsin, 1982.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Advance Organizers; Attention; *Audiovisual Aids; *Cognitive Processes; *Instructional Materials; *Media Selection; Program Development; Teaching Methods; *Teleconferencing
IDENTIFIERS *Selective Attention; South Dakota

ABSTRACT

For a teleconference to be successful, presentations need to be both interesting and educational. The integration of media components such as slide, overhead transparencies, videotapes, or handouts in an audio teleconference expands a single-channel presentation into a multi-sensory channel presentation. The selection and utilization of such media should be based upon instructional principles derived from research on human perception and human learning. Attention-gaining techniques can include the use of alerting sounds, light changes, or other sudden changes in the environment, and the design of instructional materials to emphasize important concepts. The organization or patterns of a message also play an important role in the processing of information; e.g. spatial arrangement or temporal ordering of message elements can facilitate perceptual groupings and reduce processing demands. The teleconference presenter also needs to be aware of learning strategies which affect retention of content, and organize the presentation so that the content is relevant, the learner understands the structure and organization of the presentation, and interactive techniques are used to involve the learner actively in the learning process. A variety of media components can be integrated into a teleconference presentation to enhance retention of the material presented. Nineteen references are listed. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED225536

INTEGRATION OF MEDIA COMPONENTS FOR SUCCESSFUL TELECONFERENCING

Burton W. Hancock, Ph.D.
Research Associate

and

Alan G. Chute, Ph.D.
Director, Teleconferencing Network

and

Robert R. Raszkowski, M.D., Ph.D.
Associate Professor, Department of Internal Medicine

and

Kathy D. Austad, M.S.
Teleconferencing Program Coordinator

The University of South Dakota School of Medicine
Sioux Falls, South Dakota

Paper was published in
Teleconferencing and Electronic Communication
L.A. Parker and C. Olgren (Eds.)
University of Wisconsin, Madison, 1982

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Alan G. Chute

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR010541

INTEGRATION OF MEDIA COMPONENTS FOR SUCCESSFUL TELECONFERENCING*

Burton W. Hancock, Ph.D.
Research Associate

Alan G. Chute, Ph.D.
Director, Teleconferencing Network

Robert R. Raszkowski, M.D., Ph.D.
Associate Professor, Department of Internal Medicine

Kathy D. Austad, M.S.
Teleconferencing Program Coordinator

The University of South Dakota School of Medicine
Sioux Falls, South Dakota

For a teleconference to be successful, a teleconference presenter needs to make the teleconference presentation both interesting and educational. Audio teleconferencing is frequently regarded as a weak instructional medium by new users because it does not provide the learners with enough visual cues to gain and maintain attention, or to structure and organize the presentation. However, audio teleconferencing, when carefully integrated with slides, overhead transparencies, videotapes, or handouts can be a successful educational medium. The integration of such media components in an audio teleconference expands a single channel presentation into a multi-sensory channel presentation.

The selection and utilization of media in an educational teleconference should be based upon instructional principles derived from research on human perception and human learning. In this article, examples of media utilization techniques for teleconference presentations are described.

Audience Attention

One of a teleconference presenter's first challenges is to gain the attention of the audience, and thereafter to continue to hold that attention. Although a certain amount of audience attention can be expected, maintaining that attention is far from guaranteed. Generalized attending is often insufficient, for attention must be directed narrowly and precisely to critical aspects of the subject matter.[1]

Gaining Attention

Among the first steps to be taken in designing a teleconference is to make provisions for gaining attention. It is generally recognized that there are two kinds of attention-gaining techniques. The first is a general alerting technique in which the audience assumes a posture of readiness or anticipation for the learning experience. This can be accomplished by: using alerting sounds, light changes, or other sudden changes in the environment. The second attention gaining technique is accomplished through selective attention. The instructional materials are designed to give emphasis to the important concepts being presented.[2] For words in print, this is generally accomplished by underlining or italicizing the important points. For pictures and diagrams, feature cues including color, geometric shape, size, angular orientation, and brightness highlight the concepts to be perceived.[3] For audio teleconferencing, selective attention can be accomplished by changes in volume, changes in voice, inflection, use of pauses, or use of audio embellishments such as sound effects.

Maintaining Attention

Maintaining the audience's attention is an important component in developing instruction for face-to-face presentations. Maintaining an audience's attention is equally as important, if not more important, in a teleconference presentation. Since presentations via teleconference

---

*The South Dakota Medical Information Exchange has been developed under Exchange of Medical Information Grant No. 80-001-03 from The United States Veterans Administration to the University of South Dakota School of Medicine. The opinions stated in this article are those of the authorsand do not necessarily represent those of The Veterans Administration.

lack the attention getting potential of face-to-face presentations, special considerations must be made to maintain the audience's level of attention. The use of visually stimulating media and frequent changes in the visual materials are methods the authors have used to maintain the audience's attention during a teleconference.[4]

Perceptual Principles

It is frequently impossible to predict with certainty what individuals at remote locations will attend to during a teleconference. However, it is possible to describe some of the major ways in which perceptions will vary and some of the conditions under which they will vary. With an understanding of the principles of perception, a teleconference presenter can design a teleconference to increase the probability that a message will be attended to and encoded.

Perception is Selective

Perception is relative rather than absolute. Individuals attend to only a few of the sights, sounds, and smells available in an environment at any one time.[5,6,7,8] If the teleconference presenter can predict what the individuals in the audience will selectively perceive, or attend to, he will be able to accentuate the critical aspects of a message and de-emphasize or delete distracting stimuli. Selective perception is in part physical, and in part dynamic. What an individual perceives depends upon what the individual considers to be the critical aspects of the message.[5,8,9,10]

There are several strategies which can be employed to enhance selective perception. In a teleconference presentation, limiting the range of the topic presented, going through a complex process in a step wise manner, or emphasizing the relevant aspects of the material can facilitate selective perception. Visual materials can be prepared which illustrate the key information presented or present complex information in a series of visuals. Visual cueing can be employed for highlighting relevant parts of the visual. An obvious cue such as an arrow can focus attention to the point being emphasized. During the teleconference, the presenter can also use voice cues to direct the audience's attention to the visual cues designed into the media materials. This insures that the program participants located at remote sites are attending to the same content material. It is important for a teleconference presenter to remember that the problem of directing perceptual selectivity includes controlling attention within the audio channel, among visual elements, and between the auditory and visual elements.

Once a teleconference presentation has been designed to gain the attention of the audience, the problem arises of how to maintain the optimum level of stimulation. An individual's capacity for encoding information is limited. This restricts the amount of information which can be presented during a teleconference. The teleconference presenter's goal should be to design instructional teleconferences which reduce perceptual demands by increasing the codability of the message. By increasing the codability of a message, the amount of information processed can be increased.[11,12]

Perception is Organized

The organization or patterns of a message also play an important role in the processing of information.[4,11] Perception should be organized. Organization of the message influences the ease and accuracy of perception.[5,13] The teleconference presenter should make the organization of messages apparent to the audience. For example, simply numbering steps in a series of events gives organization to what the audience perceives. Perception is also strongly effected by what the audience expects to perceive.[9,13] Handouts such as a topical outline can provide a framework for perceiving the organization of the presentation.

By using structuring strategies such as the appropriate spatial arrangement or temporal ordering of message elements, the teleconference presenter can facilitate perceptual groupings and reduce processing demands. Increasing an individual's encoding capacity can also be accomplished by combining the auditory and visual channels to deliver instruction.[11] This is especially important for teleconference presentations. Instruction via teleconferencing is primarily auditory and lacks face-to-face contact between the presenter and the audience. Therefore, visual materials are essential for successful teleconferencing.

Learning Strategies

In addition to employing perceptual principles to gain and maintain attention, the teleconference presenter needs to be aware of those learning strategies which affect retention of the content. Content in a teleconference needs to be relevant to the learner so that the learner feels comfortable interacting with the presenter. The content also needs to be presented in a way that the learner understands the struc-

ture and organization of the presentation. Media materials, in addition to their attention directing functions, can be used to structure the overall teleconference and to facilitate the learner's retention of the content material.

Relevant Content

Learning that is meaningful to an individual is acquired more readily and is retained longer than that which appears meaningless or arbitrary.[14,15] When designing media for instructional teleconferences, it is important to incorporate meaningful visual examples with which the learner is familiar. The extent to which the material is familiar to the learner or relevant to the individual's prior experiences or current interests strongly influences the degree to which the material is retained.

Participation

Presenters need to encourage the participants to take an active role in teleconference programs. Interactive techniques and learner involvement are essential elements in the design of a successful teleconference.[16,17] Learning theory emphasizes that the learner should be active in the learning process.[18] It is important that adult learners participating in continuing education via teleconferencing be allowed to contribute to the program by sharing their experiences and discussing perceptions they hold. Presenters on the South Dakota Medical Information Exchange teleconferencing network typically employ "summary or transition visuals" during the teleconferences to indicate stopping points for discussion.[4] While a "summary or transition visual" is being projected, the individual participants are asked to share their reactions to the content which was just presented. This activity not only increases interest and generates participation, but also reinforces the content and thereby increases the probability of retention.

Content Organizers

The extent to which material is organized and the extent to which the learner is aware of that organization provides a meaningful context in which the material can be remembered. The relative difficulty or ease of meaningful learning is a function of the extent to which the individual learner possesses a relevant cognitive structure. Meaningful learning proceeds most easily when it moves from the abstract to the concrete.[19] For instance, "advance organizers" are devices employed by Ausubel to present an outline of the program content at a higher level of abstraction, generality, and inclusiveness. The purpose of an "advance organizer" is to provide an "ideational scaffolding" into which subsequently presented material can be presented.[19] Providing the learner with strategies for classifying such things as events, objects, or diseases, is a frequently used advanced organizer.

Integrating Media for Structure

When designing their presentations for South Dakota Medical Information Exchange programs, presenters are asked to use media materials to "preview, present, and review" the program. By previewing the program at the start of the teleconference, the presenter in effect, tells the participant how the teleconference content material is related to his current knowledge base.[4] The presenter furnishes the participants with an overview in the form of a welcome letter, a written outline, or a visual outline to introduce the presentation. This overview provides an advanced framework for perceptual organization and sets forth the most important terms and concepts that are to be presented to the learner. This will help to facilitate learning and retention for participants. The presenter uses the outline to explain what will be covered in the program, how much time will be spent in each area, what types of interactions are planned, and what is expected of the participants.

During the presentation portion of the teleconference, presenters are encouraged to have the participants focus their attention on the visual materials. As the presenter discusses his topic, he directs the audience's attention to relevant visual data being presented. Typically the instructor presents the first fifteen to twenty minutes of the teleconference relying heavily on media materials to structure and organize the content.[4] After this first period of content material is presented, the instructor directs the audience's attention to the handouts for the next ten minutes during a problem solving exercise such as a case study, or a hypothetical scenario. During the discussion period, the presenter may redirect the audience's attention back to his slides, overhead transparencies, handouts or perhaps to a video cassette segment to clarify salient points.

Presenters of educational teleconferences on the South Dakota Medical Information Exchange teleconferencing network use a combination of visual materials to organize their presentations. Slides supplemented with a handout packet are most often used. Overhead transparencies are frequently used when only a few visuals are

required. Video cassettes have been used particularly with topics which require a motion component in the learning activity. After the preview and present portions of the teleconference have ended, the presenter typically uses a visual outline to review the major points of the program and to restate the objectives. When the presenter previews, presents and reviews the content, he facilitates participant learning.

Summary

If a teleconference presenter effectively employs perceptual principles in the design of his media materials, he should be able to gain and maintain an audience's attention in a teleconference. If a presenter correctly utilizes learning strategies which are appropriate for a teleconference situation, the presenter will be able to facilitate participant learning. This article has described how a teleconference presenter can integrate a variety of media components into a teleconference presentation to gain and maintain audience attention, structure and organize the presentation, and enhance retention of the material presented.

References

[1]Fleming, M. and Levie, W.H. Instructional Message Design: Principles from the Behavioral Sciences. Englewood Cliffs, NJ: Education Technological Publications, 1978.

[2]Gagne, R.M. The Conditions of Learning (3rd ed.). New York: Holt, Rinehart and Winston, 1977.

[3]McVey, C.F. An analysis, synthesis, and application of selected research findings to visual design and presentation by the visual specialist. Unpublished doctoral dissertation, University of Wisconsin, 1969.

[4]Raszkowski, R.R. and Chute, A.G. Guidelines For Effective Teleconference Presentations in Continuing Medical Education. Issues in Higher Education, Vol. 6, 1982

[5]Berelson, B. and Steiner, A. Human Behavior: An Inventory of Scientific Findings. New York: Harcourt, Brace, and World Inc., 1964.

[6]Helson, H. Adaptation-Level Theory. New York: Harper and Row, 1964.

[7]Rock, I. An Introduction to Perception. New York: MacMillan Publishing Co., 1975.

[8]Treisman, A.M. Selective attention in man. In P.A. Fried (Ed.), Readings in Perception: Principles and Practice. Lexington, MA: D.C. Heath & Co., 1974.

[9]Forgus, R.H. Perception. New York: McGraw-Hill Book Company, 1966.

[10]McGinnies, E. Emotionality and perceptual defense. In P.A. Fried (Ed.), Readings in Perception: Principle and Practice. Lexington, MA: D.C. Heath and Co., 1974.

[11]Moray, N. Where is capacity limited? A survey and a model. In A.F. Sanders (Ed.), Attention and Performance. Amsterdam: North-Holland Publishing Co., 1977.

[12]Posner, M.I. Cognition: An Introduction. Glenview, IL: Scott, Foresman and Co., 1973.

[13]Murch, G.M. Visual and Auditory Perception. Indianapolis: The Bobbs-Merrill Co., 1973.

[14]McKeachie, W.J. Instructional psychology. In P.H. Mussen and M.R. Rosenzweig (Eds.), Annual Review of Psychology (Vol. 25). Palo Alto: Annual Reviews, Inc., 1974.

[15]Mauly, G.J. Psychology for Effective Teaching. New York: Holt, Rinehart, and Winston, 1973.

[16]Monson, M.K. Bridging the Distance: An Instructional Guide to Teleconferencing. Instructional Communication Systems, University of Wisconsin-Extension, Madison, 1978.

[7]Parker, L.A. and Monson, M.K. More Than Meets the Eye. Instructional Communications Systems, University of Wisconsin-Extension, Madison, 1980.

[18]Bruner, J.S. Toward a Theory of Instruction. Cambridge: Harvard University Press, 1966.

[19]Ausubel, D.P. Educational Psychology: A Cognitive View. New York: Holt, Rinehart and Winston, 1968.